**MACROMOLECULE JIGSAW – CARBOHYDRATE GROUP**

You and your table mates will be researching and creating an informational poster on one of four biological macromolecules: carbohydrates, lipids, proteins, or nucleic acids. You will have one day in class to research and one day in class to create the poster. During the course of your research you should answer all of the questions listed below. What you do not complete in class you will need to complete at home on your own. Each person will create their own poster and will be provided with paper as well as access to markers, colored pencils, rulers, and scissors – any additional items must be provided by you (additional items are not required for the successful completion of this assignment).

1. State the elements that most carbohydrates contain
2. Describe the ratio of the elements that are found in carbohydrates
3. State the monomer
4. The most common form of carbohydrate is glucose. Draw the ring and branch structures of glucose.
5. Name the two structural isomers of glucose.
6. Explain the difference between monosaccharide, disaccharides, and polysaccharides.
7. There are two major functions of carbohydrates. List each function and give at least two examples of specific carbohydrates that do each job (one example from plants, one from animals).
8. Describe the difference between starch and cellulose.

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7. There are two major functions of carbohydrates. List each function and give at least two examples of specific carbohydrates that do each job (one example from plants, one from animals).
8. Describe the difference between starch and cellulose.

**MACROMOLECULE JIGSAW – PROTEIN GROUP**

You and your table mates will be researching and creating an informational poster on one of four biological macromolecules: carbohydrates, lipids, proteins, or nucleic acids. You will have one day in class to research and one day in class to create the poster. During the course of your research you should answer all of the questions listed below. What you do not complete in class you will need to complete at home on your own. Each person will create their own poster and will be provided with paper as well as access to markers, colored pencils, rulers, and scissors – any additional items must be provided by you (additional items are not required for the successful completion of this assignment).

1. State the elements that most proteins contain?
2. State the monomer of proteins
3. Draw an example of the monomer.
   1. Label the carboxyl group, amino group, and the R group.
4. Describe the major types of R groups
5. State how many different types of monomers are there in humans
6. Explain how one protein monomer differs from another protein monomer
7. Draw a dipeptide and circle the bond that holds the molecule together
8. There are at least four major functions of proteins. List each function and an example of a type of protein that does each job.

**MACROMOLECULE JIGSAW – PROTEIN GROUP**

You and your table mates will be researching and creating an informational poster on one of four biological macromolecules: carbohydrates, lipids, proteins, or nucleic acids. You will have one day in class to research and one day in class to create the poster. During the course of your research you should answer all of the questions listed below. What you do not complete in class you will need to complete at home on your own. Each person will create their own poster and will be provided with paper as well as access to markers, colored pencils, rulers, and scissors – any additional items must be provided by you (additional items are not required for the successful completion of this assignment).

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7. Draw a dipeptide and circle the bond that holds the molecule together
8. There are at least four major functions of proteins. List each function and an example of a type of protein that does each job.

**MACROMOLECULE JIGSAW – LIPID GROUP**

You and your table mates will be researching and creating an informational poster on one of four biological macromolecules: carbohydrates, lipids, proteins, or nucleic acids. You will have one day in class to research and one day in class to create the poster. During the course of your research you should answer all of the questions listed below. What you do not complete in class you will need to complete at home on your own. Each person will create their own poster and will be provided with paper as well as access to markers, colored pencils, rulers, and scissors – any additional items must be provided by you (additional items are not required for the successful completion of this assignment).

1. State the elements that most lipids contain?
2. Why are lipids not considered to be polymers?
3. Describe the 4 major groups of lipids by answering the following
   1. Triglycerides
      1. Draw and label a triglyceride
      2. Compare the two types of triglycerides (saturated vs unsaturated fats and oils)
      3. State the function of triglycerides
   2. Phospholipids
      1. Draw and label a phospholipid
      2. State the cellular structure that phospholipids form
      3. State the function of phospholipids
   3. Waxes
      1. State the function
      2. State two examples of organisms that use waxes and describe how they use it.
   4. Steroids
      1. Describe the structure
      2. State the function
      3. State three examples of steroids found naturally in humans

**MACROMOLECULE JIGSAW – NUCLEIC ACID GROUP**

You and your table mates will be researching and creating an informational poster on one of four biological macromolecules: carbohydrates, lipids, proteins, or nucleic acids. You will have one day in class to research and one day in class to create the poster. During the course of your research you should answer all of the questions listed below. What you do not complete in class you will need to complete at home on your own. Each person will create their own poster and will be provided with paper as well as access to markers, colored pencils, rulers, and scissors – any additional items must be provided by you (additional items are not required for the successful completion of this assignment).

1. State the elements that most nucleic acids contain?
2. State the monomer of nucleic acids.
3. Draw and label a nucleotide.
4. State the function of nucleic acids
5. There are two types of nucleic acid polymers: DNA and RNA
   1. DNA
      1. What does DNA stand for?
      2. What type of 5-carbon sugar is found in its monomers?
      3. What types of nitrogen bases are found in its monomers?
      4. How is its structure different than that of RNA?
      5. Where is it found in human cells?
   2. RNA
      1. What does RNA stand for?
      2. What type of 5-carbon sugar is found in its monomers?
      3. What types of nitrogen bases are found in its monomers?
      4. How is its structure different than that of DNA?
      5. Where is it found in human cells? 9.
6. There is a special kind of nucleic acid monomer called ATP
   1. What does ATP stand for?
   2. How does this monomer differ from the ones described in question 3
   3. What is the function of this special monomer?